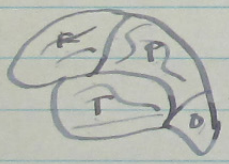
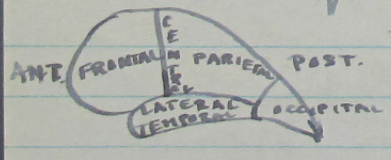
Fluid - between different membranes, acts as water cushion to reduce jar. - cushions brain & spinal cord.

Parts of brain - cerebrum
3 parts brain stem
cerebellum

cerebrum - largest & highest part.
- highest in position & function.
- governs intelligence - seat of mind.
- divided into 2 hemispheres by longitudinal fissure.
- fissure incomplete at bottom - corpus
- 2 hemispheres united at bottom by corpus callosum.

from side - each hemisphere has 5 lobes.
- named from skull - lying bones of skull
frontal, parietal, occipital, temporal
- central sulcus - groove - between frontal & parietal lobes.
- a lateral sulcus separating temporal lobe from parietal & frontal above.





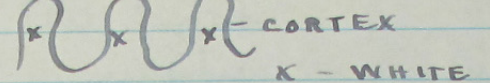
LEFT HEMISPHERE

- surface wrinkled.
- many ridges & fissures.
- ridges called convolutions. (gyri)

use of ridges - increase surface of cerebrum - surface - cortex.
- cortex contains nerve cells.
- 1/3 cortex visible
2/3 in the fissures.

deep to cortex - white matter - consists of nerve fibres connecting different parts of brain.

cortex - gray.



functions of cerebrum -
- governs intelligence.
- nerve cells in cortex.
- highly specialized - different regions - different things.

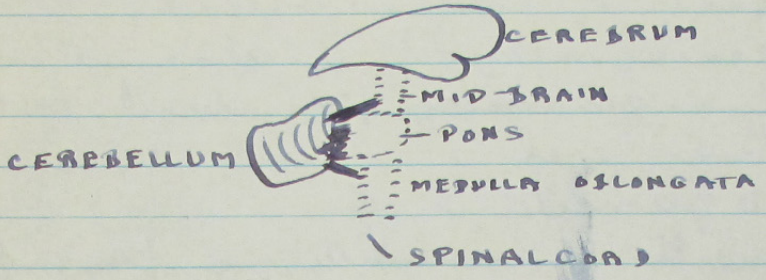
~~Brain stem~~
- connects cerebrum above with spinal cord below & cerebellum behind.

3 parts - (above downwards)
- mid - brain
- pons
- medulla oblongata.

uses - mid-brain & pons - connectors.
medulla - double function
1) - partly a connector.
- some fibres cross to opposite side.
- means a brain injury above medulla, may show on opposite side of body.
2) - vital centres - a group of nerve cells to control a function like breathing -
1) respiratory centre - regulates ~~depends~~ on
2) size of arteries - called vaso - motor centre.

III

3) cardiac centre - regulates action of heart



cerebellum -

position - below the posterior part of cerebrum, in posterior cranial fossa.

attachments - attached to brain stem in front of it, by connective fibres - peduncles.

parts - cerebellum, arranged in 2 hemispheres - r. & l., with a central part called vermis (worm)

surface - in layers (laminated)
- not wrinkled. ~~th~~
- on section looks like a tree (the tree of life - arbor vitae).

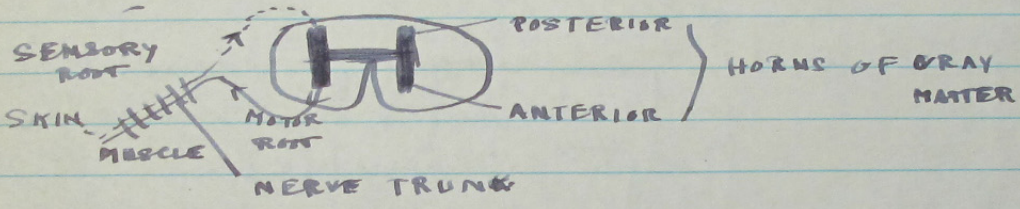
use - generic action.
- muscular control of balance.

cerebellum - connected with eyes & joints & muscles & internal ear.

Spinal cord.
- a prolongation of central nervous system down vertebral canal of vertebral column.

spinal canal - lined with same membranes of ~~cord~~ as brain.
- membranes ~~merge from~~ same as brain
- spinal nerves emerge from spinal cord.

cord - on section - oval
- anterior fissure
- gray matter in interior, in form of H - contains nerve cells.
- H has 2 pr. horns, anterior & posterior
anterior horn for motor nerves.
posterior " " sensory "



Spinal nerves.
roots - buried in spinal cord.
- anterior root (motor) carries outgoing messages from anterior horn to muscles.
- posterior root (sensory) carries incoming messages from skin etc. to posterior horn.

nerve trunks - in union of the 2 roots which takes place in intervertebral foramen
- is a mixed nerve - both motor & sensory.
- nerve trunk divides 1) posterior division to back of body near back-line.
2) anterior division follows body wall & supplies other structures

Nerve structure
1 - axis cylinder
2 - medullary sheath.
3 - neurolemma.

Nerves cranial
spinal
roots

Spinal cord
white matter
grey matter.

Brain stem
1 - midbrain
2 - pons
3 - medulla oblongata.

Cerebellum
2 hemispheres.
vermis.

Classification of nerves.

1) function - motor & sensory & mixed.
2) location - 1) cranial (from brain)
- 12 pairs.
- chiefly to head + neck.
- numbered + named.
- 10 - cranial nerve - vagus (wanderer)
- chiefly to structures in chest + upper abdomen.

peripheral

2) spinal. - 31 prs.
- named from vertebrae.
- from vertebrae above which they emerge.
- 1st cervical nerve emerges between skull + 1st cervical vertebrae. (all others below)
- 8 cervical nerves, 12 thoracic 5 lumbar, 5 sacral, coccygeal.

plexus - mingling & webbing of nerves, specially for upper limb - called brachial plexus
2) - for lower limb - lumbar + sacral plexuses.

structure of nerve - like telephone cable.
centre - axis cylinder.
- cable of many nerve fibres.
- for conduction

outside - medullary sheath.
- fatty insulation - rubber covering of telephone cable.

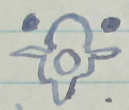
outer outer - neurolemma
- fibrous outer jacket
- cotton covering.

Autonomic (Nervous System) Sympathetic

- controls the secretion of glands & involuntary muscle.
- controls digestive tract, internal organs & blood vessels (arteries)

location - not in the brain & spinal cord.

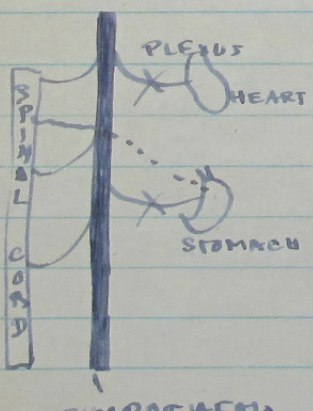
1) - chain of ganglia (or) beside the vertebral column. N.W. other. (sympathetic trunk.



2) - in plexus(es) - groups of nerve cells near the heart & the arteries to the digestive tract.

3) - in walls of viscera & the arteries.

Connections - 1) between sympathetic trunk & plexuses.
2) to central nervous system, (brain & spinal nerves)



Central control.

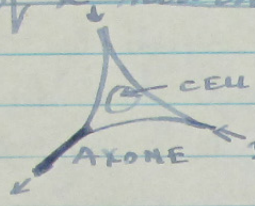
autonomic - law unto itself. - independent of will.

central - can control it in emergency.

digestion - autonomic, influenced by mind.

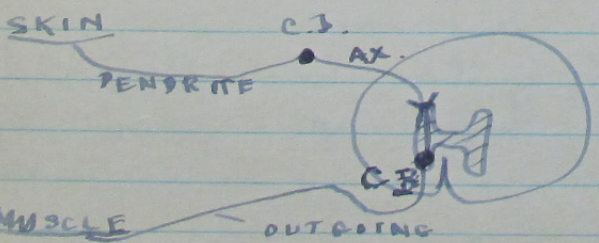
Nerve cells - neurone.
- structural unit of nervous system, of which nervous system is built.
- supplied with blood vessels.
- wrapped in coverings of connective tissues.

Parts of a neurone.



- consists 1) of a cell body, central part.
2) of processes i nerve fibres of 2 kinds.
1) axone - single process carrying outgoing message.
2) several dendrites - carrying incoming messages & controlling nourishement. (little ones)

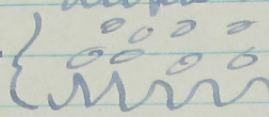
neurones - carry messages in only 1 direction
3 kinds - 1) sensory - messages to central nervous system (from skin)
2) motor - from central n. s. to muscle & other organs.
3) connector - linking different parts of C.N.S. & entirely within brain & S. cord



Messages are carried by relays of neurones

Skin.

2 layers " epidermis - surface layer
- thin & growth takes place in its deepest part.

EPIDERMIS {  GROWING CELLS.

DERMIS.

- cells develop up & rub off on the surface.

pigment - made in epidermis.

2) dermis - a connective tissue layer, containing glands, which secrete oil - sebaceous glands secrete water - sweat glands.

- skin kept pressed, sweat glands evaporate water, excrete water & keep body cool.

sensory nerve ends & blood vessels in 2nd layer.

Superficial fascia - deep to skin.
- a network of connective tissue containing fat & superficial nerves & skin.

deeper - deep fascia - thin tough sheath of connective tissue - sheath for underlying muscle.

Articulations.

Vertebra (typical) - with inferir articular proass of vertebra above.
- with superir articular process of vertebra below.

Sternum - with clavicle at clavicular notch.
- with 1st 7 costal cartileges.

Clavicle - with manubrum of sternum.
- with acromium of scapula.

Scapula - with humerus at glenoid cavity.
- with clavicle at acromium.

Humerus - with glenoid cavity of scapula.
- with ulna at trochlea.
- with head of radius at the capitulum.

Ulna - with humerus at semilunar notch
- with radius at radial notch.
- with ulnar notch of radius at head of radius.

Radius - with capitulum of humerus at

- with ulna
- with head of ulna at ulna notch
- with 2 bones of carpals.